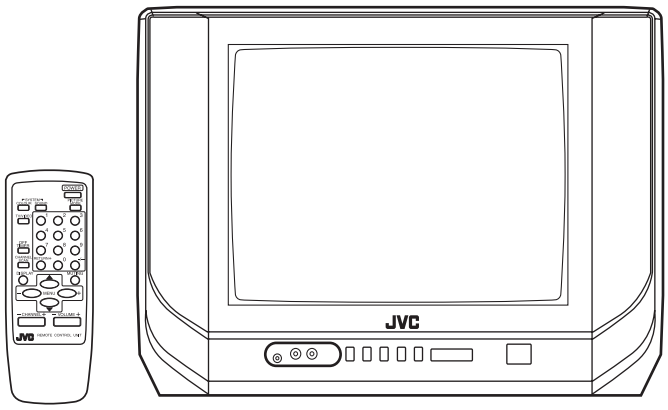
JVC

SERVICE MANUAL

COLOUR TELEVISION

AV-1406FE, AV-14146/N, AV-14149/N, AV-14F16, AV-14FMG6/G, AV-14FMG6/S

BASIC CHASSIS
CG4



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SPECIFICATION

Items		Contents	
		AV-1406FE AV-14146/N AV-14149/N AV-14F16	**AV-14FMG6/G AV-14FMG6/S**
Dimensions (W × H × D)		46.2 cm × 34.1 cm × 37.5 cm	
Mass		10 kg	
TV RF System		B/G, I, D/K	B/G, I, D/K, M
Colour System		PAL SECAM NTSC 3.58 / NTSC 4.43 (NTSC:EXT only).	PAL SECAM NTSC 3.58 / NTSC 4.43
Receiving Frequency	VHF Low VHF High UHF CATV	46.25 MHz to 140.25 MHz 147.25 MHz to 423.25 MHz 431.25 MHz to 863.25 MHz Mid (X to Z+2, S1 to S10) / Super (S11 to S20) / Hyper (S21 to S41) bands	
Intermediate Frequency	VIF	38.0 MHz (B/G, I, D/K)	38.0 MHz (B/G, I, D/K, M)
	SIF	32.5 MHz (5.5 MHz: B/G) 32MHz (6.0 MHz: I) 31.5MHz (6.5 MHz: D/K)	32.5 MHz (5.5 MHz: B/G) 32MHz (6.0 MHz: I) 31.5MHz (6.5 MHz: D/K) 33.5MHz (4.5 MHz: M)
Colour Sub Carrier	PAL SECAM NTSC	4.43 MHz 4.40625 MHz / 4.25 MHz 3.58 MHz / 4.43 MHz	
Power Input		AC110 V to AC240 V, 50 Hz / 60Hz	
Power Consumption		68 W (Max) / 47W(Avg)	
Picture Tube		Visible size: 34 cm measured diagonally (H : 28.7 cm × V : 21.7 cm)	
High Voltage		22.5 kV±1.5kV (at zero beam current)	
Speaker		5 cm × 9 cm, Oval type × 2	
Audio Power Output		3 W (monaural)	
Aerial Input Terminal		75 Ω unbalanced, coaxial	
Input Terminal [Front / Rear]	Video Audio	1 V(p-p), 75 Ω, RCA pin jack × 2 500 mV(rms) (-4 dBs), High impedance, RCA pin jack × 2	
Output Terminal [Rear]	Video Audio	1 V(p-p), 75Ω, RCA pin jack × 1 500 mV(rms) (-4 dBs), Low impedance, RCA pin jack × 1	
Headphone Jack		3.5 mm mini jack × 1	
Remote Control Unit		RM-C360GY (Battery size : AA / R6 / UM-3 × 2)	

Design and specifications are subject to change without notice.

3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.
- This memory IC stores data for proper operation of the video and drive circuits.
- When replacing, be sure to use an IC containing this (initial value) data.

3.2.1 MEMORY IC REPLACEMENT PROCEDURE

1. Power off
Switch off the power and disconnect the power plug from the AC outlet.

2. Replace the memory IC
Be sure to use the memory IC written with the initial setting values.

3. Power on
Connect the power plug to the AC outlet and switch on the power.

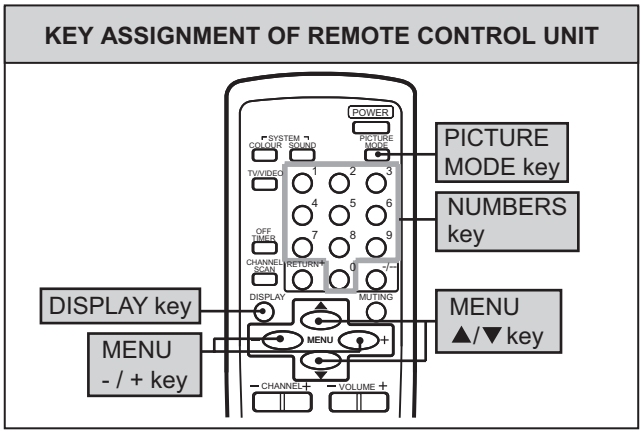
4. System constant check and setting
- It must not adjust without adjustment signals.
  (1) Press the **[DISPLAY]** key and the **[PICTURE MODE]** key of the REMOTE CONTROL UNIT simultaneously.
  (2) The SERVICE MENU screen of Fig. 1 will be displayed.
  (3) While the SERVICE MENU is displayed, again press the **[DISPLAY]** key and **[PICTURE MODE]** key simultaneously, and the SYSTEM CONSTANT SET screen of Fig. 2 will be displayed.
  (4) Check the setting values of the SYSTEM CONSTANT SETTING. If the value is different, select the setting item with the **[MENU ▲/▼]** key, and set the correct value with the **[MENU - / +]** key.
  (5) Press the **[DISPLAY]** key twice, and return to the normal screen.

5. Receiving channel setting
Refer to the OPERATING INSTRUCTIONS and set the receive channels (Channels Preset) as described.

6. User settings
Check the user setting items according to the given in page later.
Where these do not agree, refer to the OPERATING INSTRUCTIONS and set the items as described.

7. SERVICE MENU setting
Verify what to set in the SERVICE MENU, and set whatever is necessary (Fig.1).
Refer to the SERVICE ADJUSTMENT for setting.

KEY ASSIGNMENT OF REMOTE CONTROL UNIT




```
SERVICE MENU
1.IF            2.V/C
3.DEF           4.VSM PRESET
5.PRESET
6.SETUP TOUR OFF
1-6 : SELECT    DISP : EXIT
```

Fig.1

SYSTEM CONSTANT- I

```
SYSTEM CONSTANT SET 1
☞ COLOUR          : TRIPLE
  BILINGUAL       : NO
  TUNER           : MU
  ECO SENSOR      : NO
  LANGUAGE        : E/R/U
▼/▲ : SELECT
 - / + : OPERATE    DISP : EXIT
```

SYSTEM CONSTANT- II

```
SYSTEM CONSTANT SET 2
☞ B/B SOUND       : OFF
  LOCK            : 180
  COLOUR AUTO     : NO
  QSS             : MINT
  ALC             : NO
  TEXT RATE       : 20
▼/▲: SEL - / + : OPE DISP : EXIT
```

SYSTEM CONSTANT- III

```
SYSTEM CONSTANT SET 3
☞ AMP TUNER       : NO
  VNR             : YES
  TEXT TABLE      : CYL
  VOLUME PWM      : POS
▼/▲: SEL - / + : OPE DISP : EXIT
```

Fig.2

3.2.2 SETTINGS OF FACTORY SHIPMENT

3.2.2.1 BUTTON OPERATION

Setting item	Setting position
POWER	Off
CHANNEL	PR1
VOLUME	10

3.2.2.2 REMOTE CONTROL DIRECT OPERATION

Setting item	Setting position
CHANNEL	PR1
VOLUME	10
TV/VIDEO	TV
PICTURE MODE	BRIGHT
COLOUR SYSTEM	PAL
SOUND SYSTEM	B/G

3.2.2.3 REMOTE CONTROL MENU OPERATION

(1) MENU-1

Setting item	Setting position
INPUT	TV
ON TIMER	PR1 0:00
VNR	OFF

(2) MENU-2

Setting item	Setting position
AUTO SHUTOFF	OFF
CHILD LOCK	OFF
BLUE BACK	OFF

(3) MENU-3

Setting item	Setting position
SETUP TOUR	ON
LANGUAGE	ENGLISH

(4) MENU-4

Setting item	Setting position		
	BRIGHT	STANDARD	SOFT
TINT	15	15	15
COLOUR	15	15	15
BRIGHT	15	15	15
CONT.	30	15	13
SHARP	15	15	12

3.2.3 SYSTEM CONSTANT SETTING

Setting item	Setting value					
	AV-1406FE	AV-14146/N	AV-14149/N	AV-14F16	AV-14FMG6/G	AV-14FMG6/S
COLOUR	TRIPLE	←	←	←	MULTI	←
BILINGUAL	NO	←	←	←	←	←
TUNER	MU	←	←	←	←	←
ECO SENSOR	NO	←	←	←	←	←
LANGUAGE	E / R / U	E / C / M / I	←	←	E / R / A / P	←
B/B SOUND	OFF	←	←	←	←	ON
LOCK	180	←	←	←	←	←
COLOUR AUTO	NO	←	←	←	←	YES
QSS	MINT	←	←	←	←	←
ALC	NO	←	←	←	←	←
TEXT RATE	20	←	←	←	←	←
AMP TUNER	NO	←	←	←	←	←
VNR	YES	←	←	←	←	←
TEXT TABLE	CYL	←	←	←	←	←
VOLUM PWM	POS	←	←	←	←	←

3.2.4 SERVICE MENU SETTING ITEMS

Setting item	Setting value	Setting item	Setting value	
2. V/C	1.CUT OFF 2.DRIVE 3.BRIGHT 4.CONT. 5.COLOUR 6.TINT 7.SECAM BL ADJUST 8.SHARP **[Do not adjust]**	5. PRESET **[Do not adjust]**	Colour System	1. C-TRAP FIX 2. SHARP PEAK 3. ABL 4. GAMMA 5. Y. DELAY TIME 6. BLACK EXP START 7. C-BPF 8. CW / SCP 9. VIF DET LEVEL 11. IF AGC MIN 12. VIF AGC 13. VIF PMOD 19. VNR 20. RGB LIM 21. RGB LIMIT LEVEL 23. TEXT H. POSITION 24. READ DATA
3. DEFLECTION	1. VER. POSITION 2. HOR. POSITION 3. VER. HEIGHT 4. VER. LINEARITY 5. VER. SCURVE 6. HOR. VCO ADJUST **[Do not adjust]**			
4.VSM PRESET	TINT COLOUR BRIGHT CONT. SHARP		Sound System	10. SIF DET LEVEL 14. SIF BPF BW ADJUST 15. SIF TRAP F0 ADJUST 16. SIF TRAP F0 ADJUST 2 17. SIF -TRAP 18. SIF -BPF 22. SIF SW

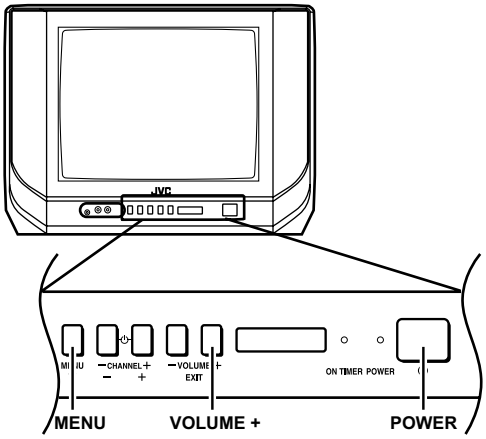
3.2.5 REPLACEMENT OF IC301 (IF V/C DECODER)

- **For the IC301(IF V/C DECODER) of this model, all data are written in the micro-computer. So, write the data in the micro-computer in accordance with the following procedures before starting adjustment.**

■ PROCEDURES

(1) Turn the POWER OFF.
(2) Replace the IC301 with a new one.
(3) While pressing **[MENU]** button and **[VOL+]** button ON the FRONT CABINET simultaneously, turn the POWER ON. When the POWER is turned ON, the data is written in the micro-computer immediately.

■ LOCATIONS OF FRONT PANEL BUTTONS



4.6 BASIC OPERATION OF SERVICE MENU

4.6.1 TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

4.6.2 SERVICE MENU ITEMS

With the SERVICE MENU, various adjustments can be made, and they are broadly classified in the following items of settings.

1.IF	Adjustment of the IF circuits.
2.V/C	Adjustment of the VIDEO circuit.
3.DEF	Adjustment of the DEFLECTION circuit.
4.VSM PRESET	Adjustment of the initial setting values of VSM condition as STANDARD, SOFT and BRIGHT.
5.PRESET	Adjustment of the RF circuit **[Do not adjust]**.
6.SETUP TOUR	It should be able to select mode (LANGUAGE and AUTO CH PRESET) **[Should be OFF]**.

4.6.3 HOW TO ENTER THE SERVICE MENU

Press the **[DISPLAY]** key and the **[PICTURE MODE]** key of the REMOTE CONTROL UNIT simultaneously. Then enter the SERVICE MENU mode as shown in Fig.1.

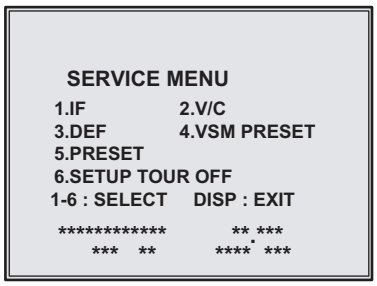
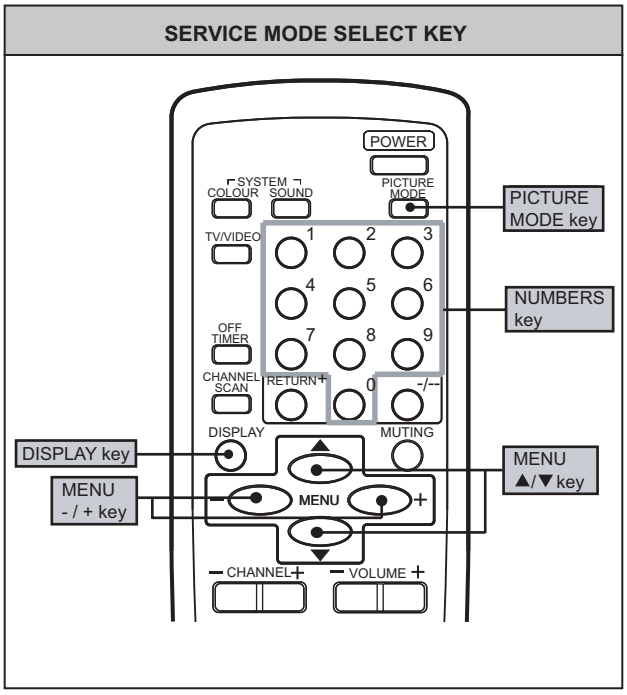


Fig.1



4.6.4 HOW TO STORE OF SETTING VALUE

The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys

4.6.5 HOW TO EXIT THE SERVICE MENU

When complete the adjustment work, press the **[DISPLAY]** key to return to the SERVICE MENU. And then press the **[DISPLAY]** key again, return to the normal screen.

4.6.6 SELECTION OF SUB MENU SCREEN

Press one of **[1]** to **[5]** keys of the REMOTE CONTROL UNIT and select the SUB MENU SCREEN form the SERVICE MENU.

4.6.7 METHOD OF SETTING

■ **1. IF**

[1. VCO]

(1) **[1]** key	Select **1. IF**.
(2) **[1]** key	Select **1. VCO**.
(3) **[MENU ▲/▼]** keys	Select setting items.
(4) **[MENU - / +]** keys	Adjust the values of the items.
(5) **[DISPLAY]** key	As you press this key twice, you will return to the **SERVICE MENU**.

[2. DELAY POINT]

(1) **[1]** key	Select **1. IF**.
(2) **[2]** key	Select **2. DELAY POINT**.
(3) **[MENU - / +]** keys	Set (adjust) the setting values of the setting items.
(4) **[DISPLAY]** key	When this is pressed twice, you will return to the **SERVICE MENU**.

NOTE:
When the setting value has been changed, the new value will be stored in memory immediately.

■ **2. V/C, 3. DEF and 4. VSM PRESET**

(1) **[2]** to **[4]** keys	Select one from **2. V/C**, **3. DEF** and **4. VSM PRESET**.
(2) **[MENU ▲/▼]** keys	Select setting items.
(3) **[MENU - / +]** keys	Adjust the values of the items.
(4) **[DISPLAY]** key	When this is pressed, return to the **SERVICE MENU**.

NOTE:
When the setting value has been changed, the new value will be stored in memory immediately.

■ **5. PRESET (Do not adjust)**

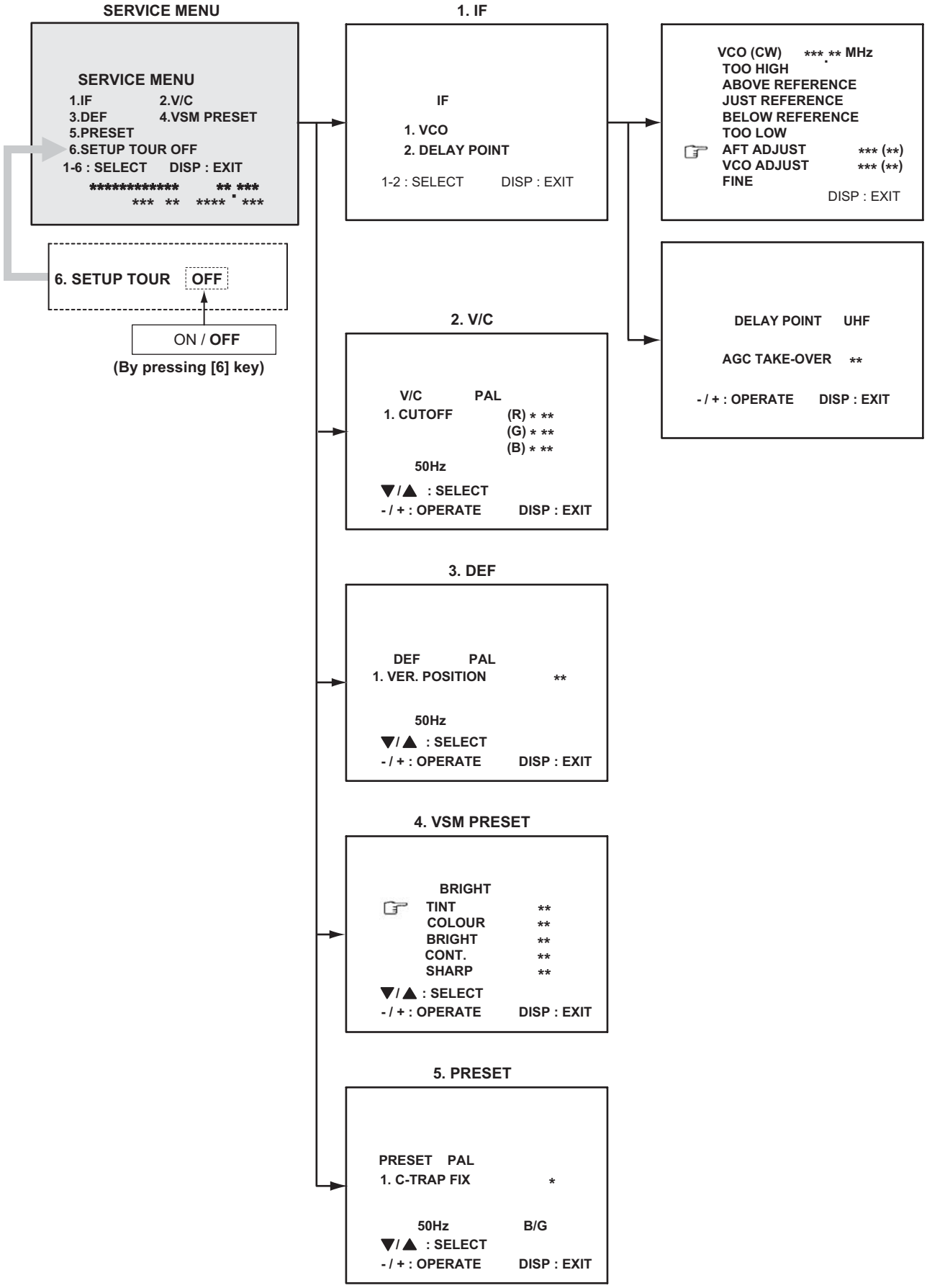
■ **6. SETUP TOUR**

(1) By pressing the **[6]** key, you can change the ON or OFF **[should be OFF]**.

Should be OFF:
If it is ON, when you turn off the power and turn on a power again, the JVC's logo will be shown about 15 seconds automatically, and the SETUP TOUR starts.

(2) **[MENU - / +]** keys	Select Language.
(3) **[MENU ▼]** key	Auto Search.

4.6.8 SERVICE MENU FLOW CHART



4.7 INITIAL SETTING VALUE OF SERVICE MENU

- **Adjustment of the SERVICE MENU is made on the basis of the initial setting values ; however, the new setting values which set the screen in its optimum condition may differ from the initial setting.**
- **Do not change the initial Setting Values of the Setting (Adjustment) items not listed in "ADJUSTMENT PROCEDURE".**

[2. V/C]

Setting item		Variable range	Initial setting value			
			PAL	SECAM	NTSC 3.58	NTSC 4.43
1.CUT OFF	RED	-128 - +127	-50	-50	-50	-50
	GREEN	-128 - +127	-50	-50	-50	-50
	BLUE	-128 - +127	-50	-50	-50	-50
2.DRIVE	RED	-128 - +127	+0	+0	+0	+0
	BLUE	-128 - +127	+0	+0	+0	+0
3.BRIGHT		-128 - +127	+0	+0	+0	+0
4.CONT.		-63 - +63	+0	+0	+0	+0
5.COLOUR		-63 - +63	+0	+0	+0	0
6.TINT	TV	-63 - +63	---	---	+0	0
	VIDEO	-63 - +63	---	---	+0	0
7.SECAM BL ADJUST		-31 - +31	+0	+0	+0	+0
8.SHARP **(Do not adjust)**	TV	-31 - +31	-17 (Fixed)	-17 (Fixed)	-17 (Fixed)	-17 (Fixed)
	VIDEO	-31 - +31	+10 (Fixed)	+10 (Fixed)	+10 (Fixed)	+10 (Fixed)

[3. DEFLECTION]

Setting item	Variable range	Initial setting value	
		fv : 50Hz	fv : 60Hz
1. VER. POSITION	-4 - +3	+0	-3
2. HOR. POSITION	-16 - +15	+1	+4
3. VER. HEIGHT	-64 - +63	-20	-2
4. VER. LINEARITY	-32 - +31	+15	+0
5. VER. SCURVE	-32 - +31	-32	+0
6. HOR. VCO ADJUST **[Do not adjust]**	-63 - +63	-32	+0

[4.VSM PRESET]

Setting item	Variable range	Initial setting value		
		BRIGHT	STANDARD	SOFT
TINT	0 - 30	15	15	15
COLOUR	0 - 30	15	15	15
BRIGHT	0 - 30	15	15	15
CONT.	0 - 30	30	15	13
SHARP	0 - 30	15	15	12

[5. PRESET]

The items in the following table, it is no requirement for adjustment.If values had changed by the miss operation, set the initial setting values in the following table.

● **COLOUR SYSTEM (Do not adjust)**

Setting item		Variable range	Initial setting value (Fixed value)			
			PAL	SECAM	NTSC 3.58	NTSC 4.43
1. C TRAP FIX		0 - 1	1	1	1	1
2. SHARP PEAK		0 - 1	0	0	0	0
3. ABL		0 - 1	1	1	1	1
4. GAMMA		0 - 1	0	0	0	0
5. Y. DELAY TIME	TV	0 - 3	0	2	2	3
	VIDEO	0 - 3	0	2	0	2
6. BLACK EXP START		0 - 3	3	3	3	3
7. C-BPF	TV	0 - 1	1	1	0	0
	VIDEO	0 - 1	1	1	1	1
8. CW / SCP		0 - 1	0	0	0	0
9. VIF DET LEVEL		-63 - +63	+0	+0	+0	+0
11. IF AGC MIN		0 - 1	0	0	0	0
12. VIF AGC		0 - 1	0	0	0	0
13. VIF PMOD		0 - 1	0	0	0	0
19. VNR		0 - 63	15	15	15	15
20. RGB LIM		0 - 1	1	1	1	1
21. RGB LIMIT LEVEL		0 - 7	2	2	2	2
23. TEXT H. POSITION		-16 - +15	-3	-3	-3	-3
24. READ DATA		---	---	---	---	---

● **SOUND SYSTEM (Do not adjust)**

Setting item	Variable range	Initial setting value (Fixed value)			
		B/G	I	D/K	M
10. SIF DET LEVEL	-7 - +7	+0	+0	+0	+0
14. SIF BPF BW ADJUST	-7 - +7	+0	+0	+0	+0
15. SIF TRAP FO ADJUST	-7 - +7	+0	+0	+0	+0
16. SIF TRAP FO ADJUST 2	-7 - +7	+0	+0	+0	+0
17. SIF -TRAP	0 - 1	0	0	0	0
18. SIF -BPF	0 - 1	0	0	0	1
22. SIF SW	0 - 1	1	1	1	0

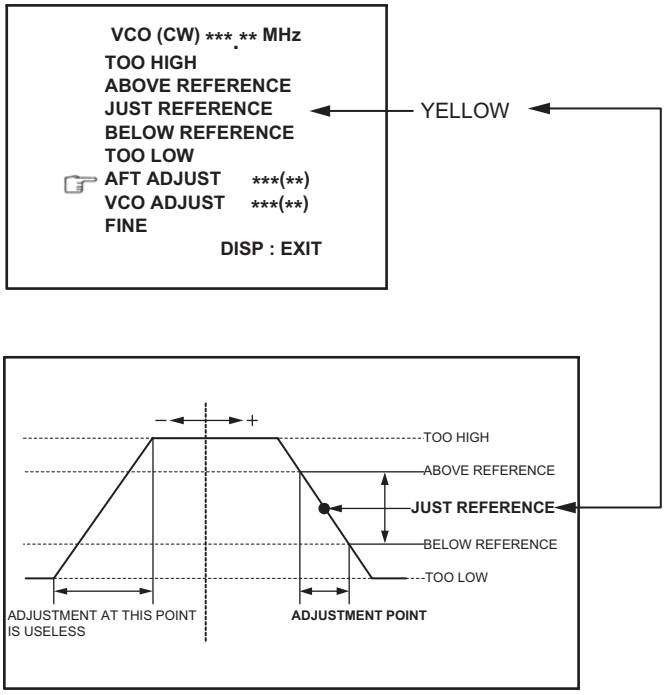
4.8 ADJUSTMENT PROCEDURE

4.8.1 CHECK ITEM

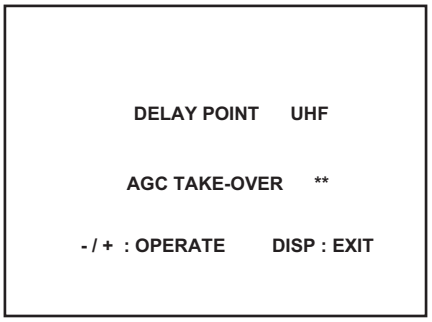
Item	Measuring instrument	Test point	Adjustment part	Description
B1 VOLTAGE	Signal generator DC voltmeter	TP-B1 : 1-pin TP-E : 5-pin (S1 connector) [MAIN PWB]		(1) Receive a whole black signal. (2) Connect a DC voltmeter to 1-pin and 5-pin of S1 connector. (3) Make sure that the voltage is DC116.2V±2.0V.

4.8.2 TUNER / IF CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
IF VCO	Signal generator Remote control unit		[1. IF] 1. VCO	• Please use signal generator which is correct proof about the sending frequency. (1) Receive any broadcast. (2) Select 1.IF from the SERVICE MENU. (3) Select **< 1.VCO >**. (4) Select VCO ADJUST with **[MENU ▲/▼]** key. (5) Press **[MENU - / +]** keys until the colour of the characters TOO HIGH changes blue to yellow. Then gradually press the **[MENU - / +]** keys until the TOO LOW changes yellow. At this time, confirm that the value of VCO ADJUST is near +00. (6) Select AFT ADJUST with **[MENU ▲/▼]** key. (7) Press **[MENU - / +]** keys until the characters JUST REFERENCE changes blue to yellow. (8) Press the **[DISPLAY]** key three times to return to normal screen.



Item	Measuring instrument	Test point	Adjustment part	Description
DELAY POINT (AGC)	Signal generator Remote control unit		[1. IF] 2. DELAY POINT (AGC TAKE-OVER)	(1) Receive a black and white signal (colour off). (2) Select 1. IF. (3) Select **< 2. DELAY POINT >**. (4) Set the setting values of the setting items as shown bellow table. (5) Then adjust the **[MENU - / +]** keys until video noise disappears. (6) Turn to other channels and make sure that there are no irregularities.



Setting Item		Variable range	Initial setting value
DELAY POINT (AGC TAKE-OVER)	NTSC3.58	0 - 127	45
	OTHER		35

4.8.3 FOCUS

Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS	Signal generator		FOCUS VR [In HVT]	(1) Receive a crosshatch signal. (2) While watching the screen, adjust the FOCUS VR to make the vertical and horizontal lines as fine and sharp as possible. (3) Make sure that when the screen is darkened, the lines remain in good focus.

4.8.4 DEFLECTION CIRCUIT

- There are 2 modes of adjustment (setting value) 50Hz mode and 60Hz mode, depending upon the kind of signals (vertical frequency 50Hz / 60Hz).
- When adjusted in 50Hz mode and 60Hz mode will be automatically set.
  The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values.The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- Make sure that the adjustment is properly done on the screen of 60Hz mode.

NOTE:

- Adjust to make both 50Hz & 60Hz are the same v. size and fine straight line.
- When adjust again, adjust 50Hz mode first.
- When adjust in 60Hz mode, only 60Hz mode is adjust.

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>V. HEIGHT /
V. POSITION</td><td>Signal generator

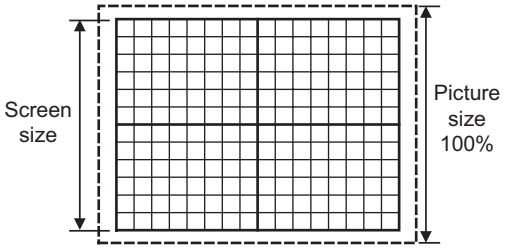
Remote control unit</td><td></td><td>[3. DEF]
1. VER. POSITION
3. VER. HEIGHT</td><td rowspan="2">(1) Receive a crosshatch signal.
(2) Select 3. DEF from the SERVICE MENU.
(3) Select < 1. VER. POSITION >.
(4) Set the initial setting value of < 1. VER. POSITION >.
(5) Adjust < 1. VER. POSITION > to agree the vertical centre with display centre.
(6) Select <3. VER. HEIGHT >.
(7) Set the initial setting value of <3. VER. HEIGHT >.
(8) Adjust <3. VER. HEIGHT > to make the vertical screen size 92% of the picture size.</td></tr>
<tr><td colspan="4"> 

Fig.1</td></tr>
<tr><td>H. POSITION</td><td>Signal generator

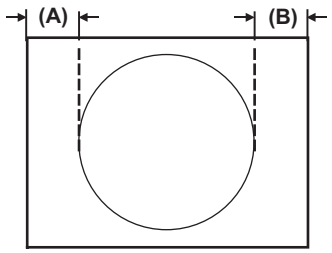
Remote control unit</td><td></td><td>[3. DEF]
2. HOR. POSITION</td><td rowspan="2">(1) Receive a circle pattern signal.
(2) Select 3. DEF from the SERVICE MENU.
(3) Select < 2. HOR. POSITION >.
(4) Set the initial setting value of < 2. HOR. POSITION >.
(5) Adjust <2.HOR. POSITION> to be equal the width of (A) and (B) as shown in Fig.2.</td></tr>
<tr><td colspan="4"> 

Fig.2</td></tr>
<tr><td>V.LINEARITY /
V.S-CURVE</td><td>Signal generator

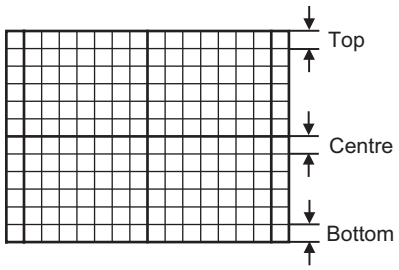
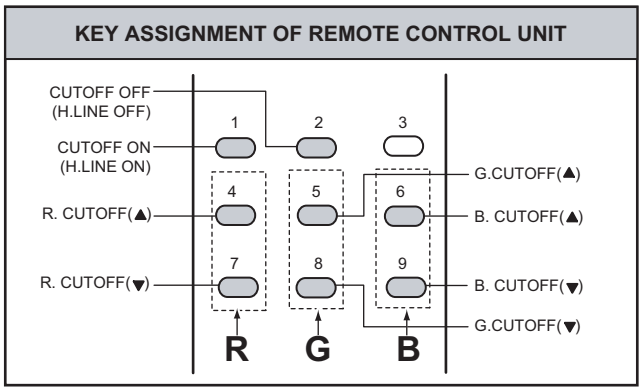
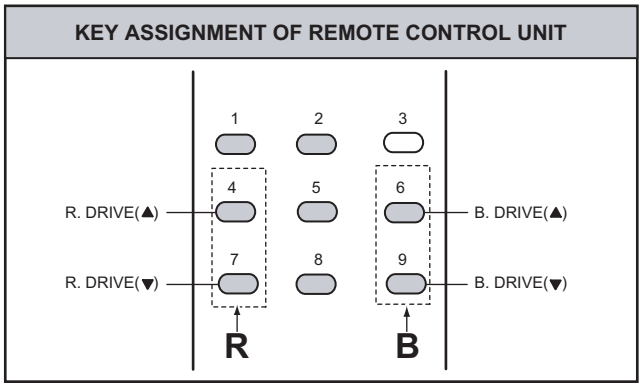
Remote control unit</td><td></td><td>[3. DEF]
4. VER. LIN.
5. VER. SCURVE</td><td rowspan="2">• When the vertical linearity has been deteriorated remarkably, perform the following steps.
(1) Receive a crosshatch signal.
(2) Select 3. DEF from the SERVICE MENU.
(3) Select < 4. VER. LIN. >.
(4) Set the initial setting value of < 4. VER. LIN. >.
(5) Select < 5. VER. SCURVE >.
(6) Set the initial setting value of < 5. VER. SCURVE >.
(7) Adjust < 4. VER. LIN. > and < 5. VER. SCURVE > so that the spaces of each line as shown in Fig.3 on TOP, CENTRE and BOTTOM become uniform.</td></tr>
<tr><td colspan="4"> 

Fig.3</td></tr>
</table>

4.8.5 VIDEO CIRCUIT

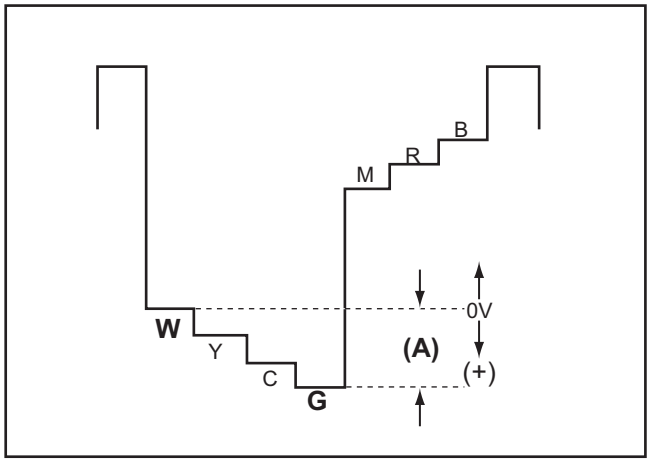
The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values. Do not change the initial setting values of the setting items not listed in "ADJUSTMENT PROCEDURE".

Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE (LOW LIGHT)	Signal generator Remote control unit		[2.V/C] 1. CUT OFF (R) 1. CUT OFF (G) 1. CUT OFF (B) SCREEN VR [IN HVT]	(1) Receive a black and white signal (colour off). (2) Select 2. V/C from the SERVICE MENU. (3) Select **< 1. CUT OFF >**. (4) Set the initial setting value of **< 1. CUT OFF >**. (5) Press the **[1]** key to show the single horizontal line on screen. (6) Turn the SCREEN VR fully counter-clockwise, then slowly turn it clockwise to where one of a red, blue or green colour is faintly visible. (7) Adjust the two colors which did not appear until the single horizontal line that is displayed becomes white using the **[4]** to **[9]** keys. (8) Turn the SCREEN VR to where the single horizontal line glows faintly. (9) Press the **[2]** key to turn off the single horizontal line. (10) Press the **[DISPLAY]** key twice to return to the normal screen.
				
WHITE BALANCE (HIGH LIGHT)	Signal generator Remote control unit		[2.V/C] 2. DRIVE (R) 2. DRIVE (B)	(1) Receive a black and white signal (colour off). (2) Select 2. V/C from the SERVICE MENU. (3) Select **< 2. DRIVE >**. (4) Set the initial setting value of **< 2. DRIVE >**. (5) Adjust the screen until it becomes white using the **[4]**, **[6]**, **[7]** and **[9]** keys. (6) Press the **[DISPLAY]** key twice to return to the nomal screen.
				
SUB BRIGHT	Remote control unit		[2. V/C] 3. BRIGHT	(1) Receive any broadcast. (2) Select 2. V/C from the SERVICE MENU. (3) Select **< 3. BRIGHT >**. (4) Set the initial setting value of **< 3. BRIGHT >**. (5) If the brightness is not the best with the initial setting value, make fine adjustment until you get the best brightness.
SUB CONTRAST	Remote control unit		[2. V/C] 4. CONT.	(1) Receive any broadcast. (2) Select 2. V/C from the SERVICE MENU. (3) Select **< 4. CONT >**. (4) Set the initial setting value of **< 4. CONT >**. (5) If the contrast is not the best with the initial setting value, make fine adjustment until you get the best contrast.

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td rowspan="2">SUB COLOUR</td><td>Remote control unit</td><td></td><td>[2. V/C]
5. COLOUR
(PAL / SECAM / NTSC)</td><td>[Method of adjustment without measuring instrument]
PAL COLOUR
(1) Receive a PAL broadcast.
(2) Select 2. V/C from the SERVICE MENU.
(3) Select < 5. COLOUR >.
(4) Set the initial setting value of < 5. COLOUR >.
(5) If the colour is not the best with the initial setting value, make fine adjustment until you get the best colour.
SECAM COLOUR
(1) Receive a SECAM broadcast.
(2) Make fine adjustment of SECAM COLOUR as previously.
NTSC 3.58 COLOUR
(1) Receive a NTSC 3.58MHz broadcast.
(2) Make similar fine adjustment of NTSC 3.58 COLOUR as previously.
NTSC 4.43 COLOUR
(1) When NTSC 3.58 adjustment completed, NTSC 4.43 will be automatically set at the respective values.</td></tr>
<tr><td>Signal generator

Oscilloscope

Remote control unit</td><td>TP-47G/R
TP-E
[CRT SOCKET PWB]</td><td>[2. V/C]
5. COLOUR
(PAL / SECAM / NTSC)</td><td>[Method of adjustment using measuring instrument]
PAL COLOUR
(1) Receive a PAL full field colour bar signal (75% white).
(2) Select 2. V/C from the SERVICE MENU.
(3) Select < 5. COLOUR >.
(4) Set the initial setting value of < 5. COLOUR >.
(5) Connect the oscilloscope between TP-47G/R and TP-E.
(6) Adjust PAL COLOUR to bring the value of (A) in the voltage table.
SECAM COLOUR
(1) Receive a SECAM full field colour bar signal (75% white).
(2) Set the initial setting value of SECAM COLOUR .
(3) Adjust SECAM COLOUR to bring the value of (A) in the voltage table.
NTSC 3.58 COLOUR
(1) Receive a NTSC 3.58 full field colour bar signal (75% white).
(2) Set the initial setting value of NTSC 3.58 COLOUR.
(3) Adjust NTSC 3.58 COLOUR to bring the value of (A) in the voltage table.
NTSC 4.43 COLOUR
(1) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.</td></tr>
</table>

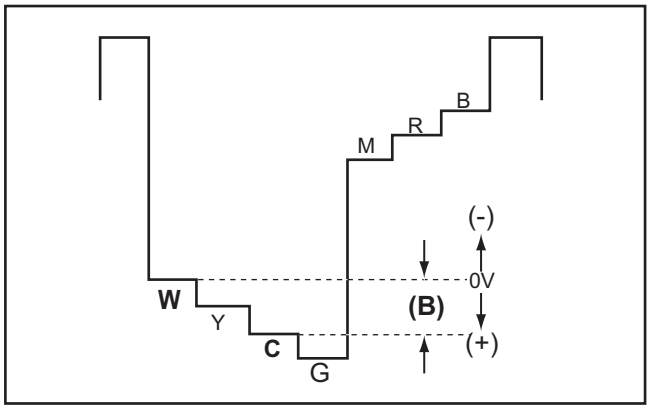


MODEL	Voltage setting (A)			
	PAL	SECAM	NTSC3.58	NTSC4.43
AV-1406FE AV-14F16 AV-14146/N AV-14149/N	+9.5V	+11V	+12V (VIDEO)	+12V (VIDEO)
AV-14FMG6/G AV-14FMG6/S	+9.5V	+11V	+11V (RF)	+11V (RF)

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td rowspan="2">SUB TINT</td><td>Signal generator

Remote control unit</td><td></td><td>[2. V/C]
6. TINT</td><td>[Method of adjustment without measuring instrument]
NTSC 3.58 TINT
(1) Receive a NTSC 3.58 full field colour bar signal (75% white).
(2) Select 2. V/C from the SERVICE MENU.
(3) Select < 6. TINT >.
(4) Set the initial setting value of < 6. TINT >.
(5) If you cannot get the best tint with the initial setting value, make fine adjustment until you get the best tint.
NTSC 4.43 TINT
(1) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.</td></tr>
<tr><td>Signal generator

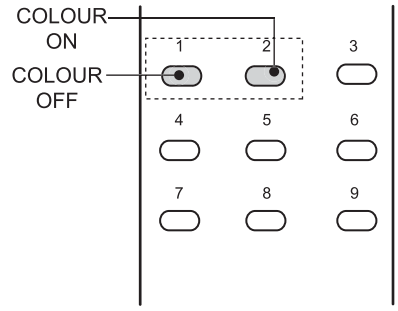
Oscilloscope

Remote control unit</td><td>TP-47G/R
TP-E
[CRT SOCKET PWB]</td><td>[2. V/C]
6. TINT</td><td>[Method of adjustment using measuring instrument]
NTSC 3.58 TINT
(1) Receive a NTSC 3.58 full field colour bar signal (75% white).
(2) Select 2. V/C from the SERVICE MENU.
(3) Select < 6. TINT >.
(4) Set the initial setting value of < 6. TINT >.
(5) Connect the oscilloscope between TP-47G/R and TP-E.
(6) Adjust NTSC 3.58 TINT to bring the value of (B) in the voltage table in the left.
NTSC 4.43 TINT
(1) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.</td></tr>
<tr><td colspan="4"> 

<table>
<tr><th rowspan="2">MODEL</th><th colspan="2">Voltage setting (B)</th></tr>
<tr><th>NTSC3.58</th><th>NTSC4.43</th></tr>
<tr><td>AV-1406FE
AV-14F16
AV-14146/N
AV-14149/N</td><td>+10V
(VIDEO)</td><td>+10V
(VIDEO)</td></tr>
<tr><td>AV-14FMG6/G
AV-14FMG6/S</td><td>+8.5V
(RF)</td><td>+8.5V
(RF)</td></tr>
</table></td></tr>
</table>

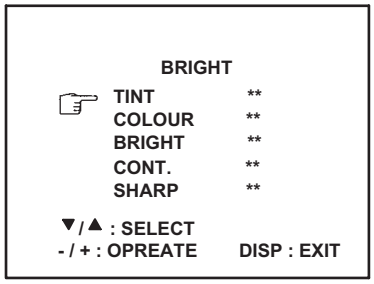
Item	Measuring instrument	Test point	Adjustment part	Description
SECAM BLACK OFFSET	Signal generator Remote control unit		[2. V/C] 7. SECAM BL ADJUST	(1) Input a SECAM full field colour bar signal. (2) Select 2. V/C from the SERVICE MENU. (3) Select **< 7. SECAM BL ADJUST >**. (4) Set the initial setting value of **< 7. SECAM BL ADJUST >**. (5) Switch the **[1]** key (colour OFF) and **[2]** key (colour ON) and make sure that there is no colour on the black and white screen. (6) If the black and white screen is not best with the initial setting value, make fine adjustment until you get the best black and white screen. (7) While watching the screen, adjust the value to be the same colour between ON & OFF by **[1]** or **[2]** key. (8) Press the **[DISPLAY]** key twice to return to the normal screen.

KEY ASSIGNMENT OF REMOTE CONTROL UNIT



4.8.6 VSM PRESET SETTING

Item	Measuring instrument	Test point	Adjustment part	Description
VSM PRESET	Remote control unit		[4. VSM PRESET] TINT COLOUR BRIGHT CONT. SHARP	(1) Select 4. VSM PRESET from the SERVICE MENU. (2) Set the PICTURE MODE to BRIGHT. (3) Select **< TINT >**. (4) Set the initial setting value of **< TINT >** as shown in the below table. (5) Select **< COLOUR >** to **< SHARP >** in turn, and set the values. (6) Respectively select the **"SOFT"** and **"STANDARD"**. Make similar adjustment as same step as above.



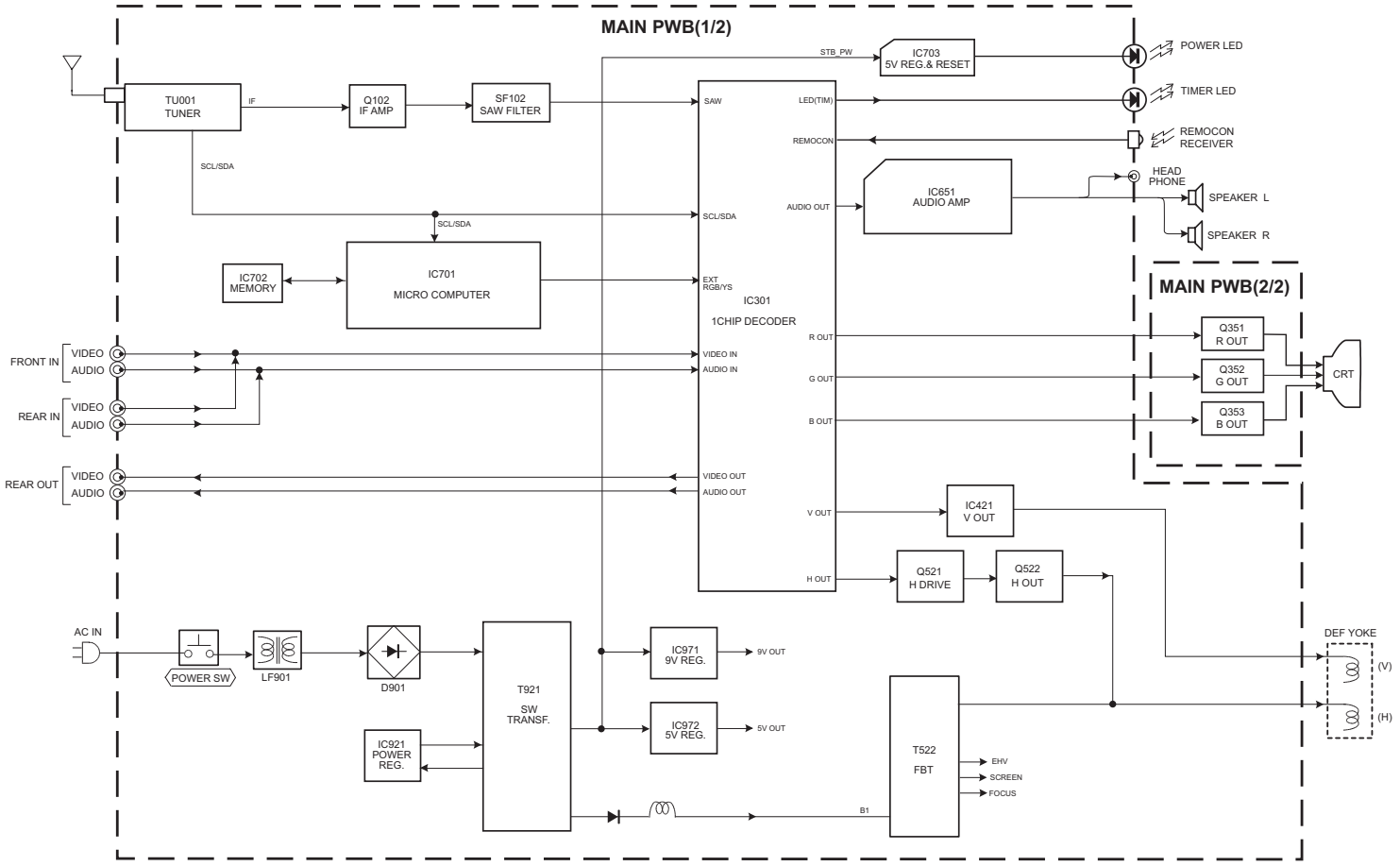
• VSM PRESET

Setting item	BRIGHT	STANDARD	SOFT
TINT	15	←	←
COLOUR	15	←	←
BRIGHT	15	←	←
CONT.	30	15	13
SHARP	15	←	12

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

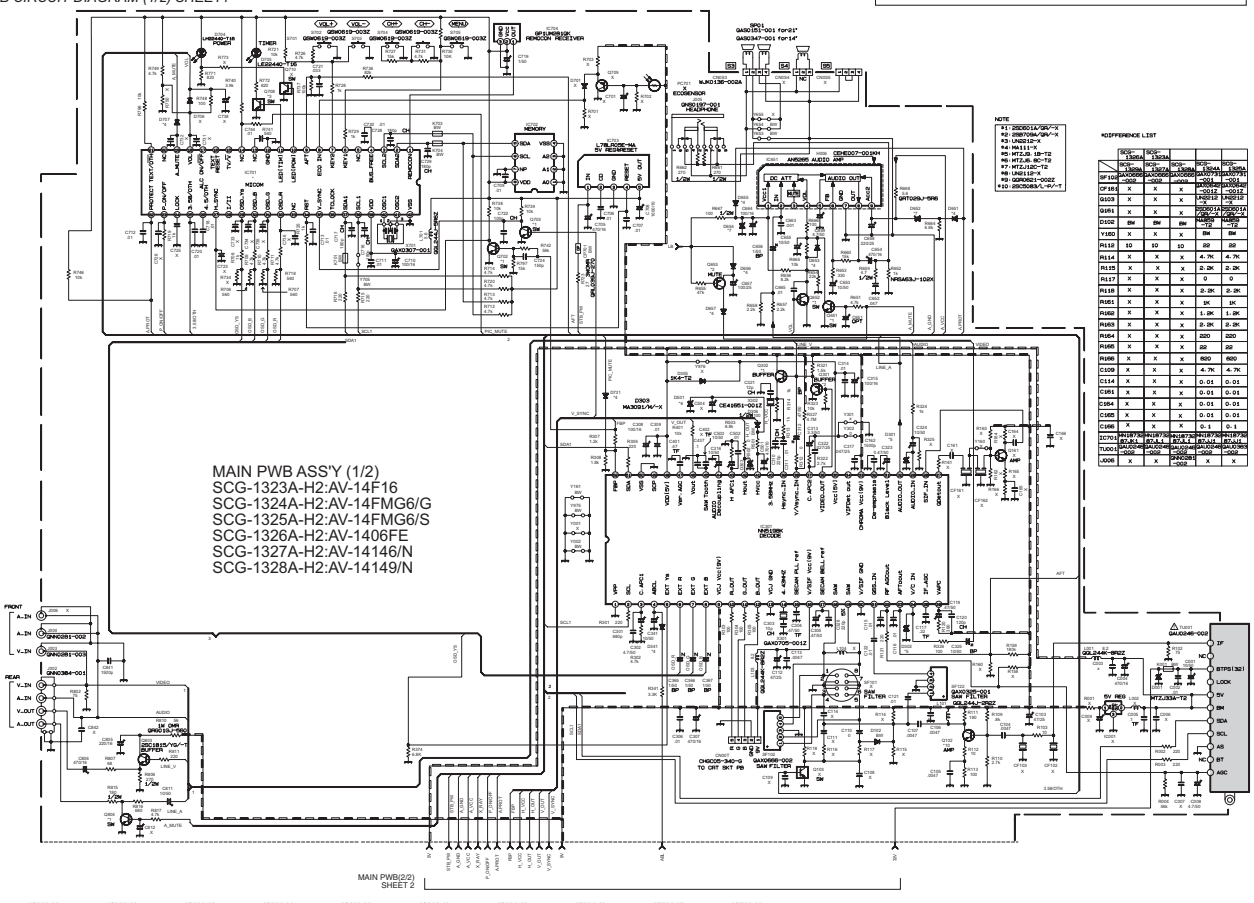
BLOCK DIAGRAM

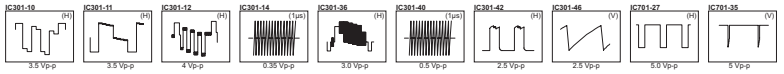


CIRCUIT DIAGRAMS

MAIN PWB CIRCUIT DIAGRAM (1/2) SHEET1

NOTE : Refer to the part list for the part number of IC702.





MODE PIN NO.	DC (V)
IC301	
1	0.0
2	4.4
3	6.3
4	3.4
5	0.0
6	5.0
7	5.0
8	5.5
9	9.0
10	3.0
11	3.0
12	3.0
13	0.0
14	2.8
15	4.2
16	9.0
17	3.8
18	2.8
19	2.8
20	0.0
21	0.0
22	0.0
23	4.4
24	3.2
25	3.0
26	3.5
27	4.2
28	3.7
29	4.1
30	3.9
31	4.2
32	4.2
33	9.0
34	4.0
35	4.7
36	4.0
37	6.1
38	4.2
39	4.3
40	2.7
41	6.2
42	1.0
43	3.7
44	3.9
45	1.2
46	3.1
47	5.4
48	5.0
49	0.7
50	0.0
51	4.4
52	0.7
IC651	
1	12.5
2	5.6
3	0.0
4	2.4
5	9.4
6	9.6
7	0.0
8	9.7
9	19.9
IC701	
1	4.5
2	4.9
3	0.0
4	0.0
5	0.0
6	4.9
7	4.9
8	2.3
9	3.0
10	4.9
11	0.0
12	0.0
13	2.4
14	0.1
15	1.8
16	1.8
17	0.0
18	0.0
19	0.0
20	4.9
21	4.9
22	4.9
23	4.9
24	2.3
25	4.9
26	0.0
27	4.1
28	4.9
29	0.0
30	0.0
31	0.0
32	0.0
33	0.0
34	4.9
35	4.7
36	4.9
37	4.4
38	4.4
39	4.9
40	0.0
41	2.1
42	0.0
IC702	
1	0.0
2	0.0
3	0.0
4	0.0
5	4.9
6	4.9
7	0.0
8	4.9
IC703	
1	14.4
2	5.8
3	0.0
4	4.9
5	4.9
IC704	
1	4.5
2	4.9
3	0.0
Q102	
E	0.0
C	9.0
B	2.3
Q103	
E	0.0
C	0.0
B	4.0
Q161	
E	2.5
C	8.3
B	3.2
Q301	
E	4.6
C	0.0
B	4.0
Q302	
E	4.0
C	9.0
B	4.6
Q651	
E	0.0
C	0.3
B	0.0
Q652	
E	0.0
C	1.0
B	0.6
Q653	
E	15.1
C	0.0
B	15.2
Q702	
E	0.0
C	4.2
B	0.0
Q703	
E	0.0
C	4.8
B	0.1
Q708	
E	0.0
C	2.0
B	0.0
Q710	
E	0.0
C	0.1
B	0.0
Q803	
E	0.0
C	8.1
B	4.7
Q804	
E	0.0
C	0.0
B	0.1
TU001	
1	4.6
2	NC
3	0.0
4	4.4
5	0.0
6	4.5
7	4.9
8	0.0
9	31.3
10	NC
11	0.0

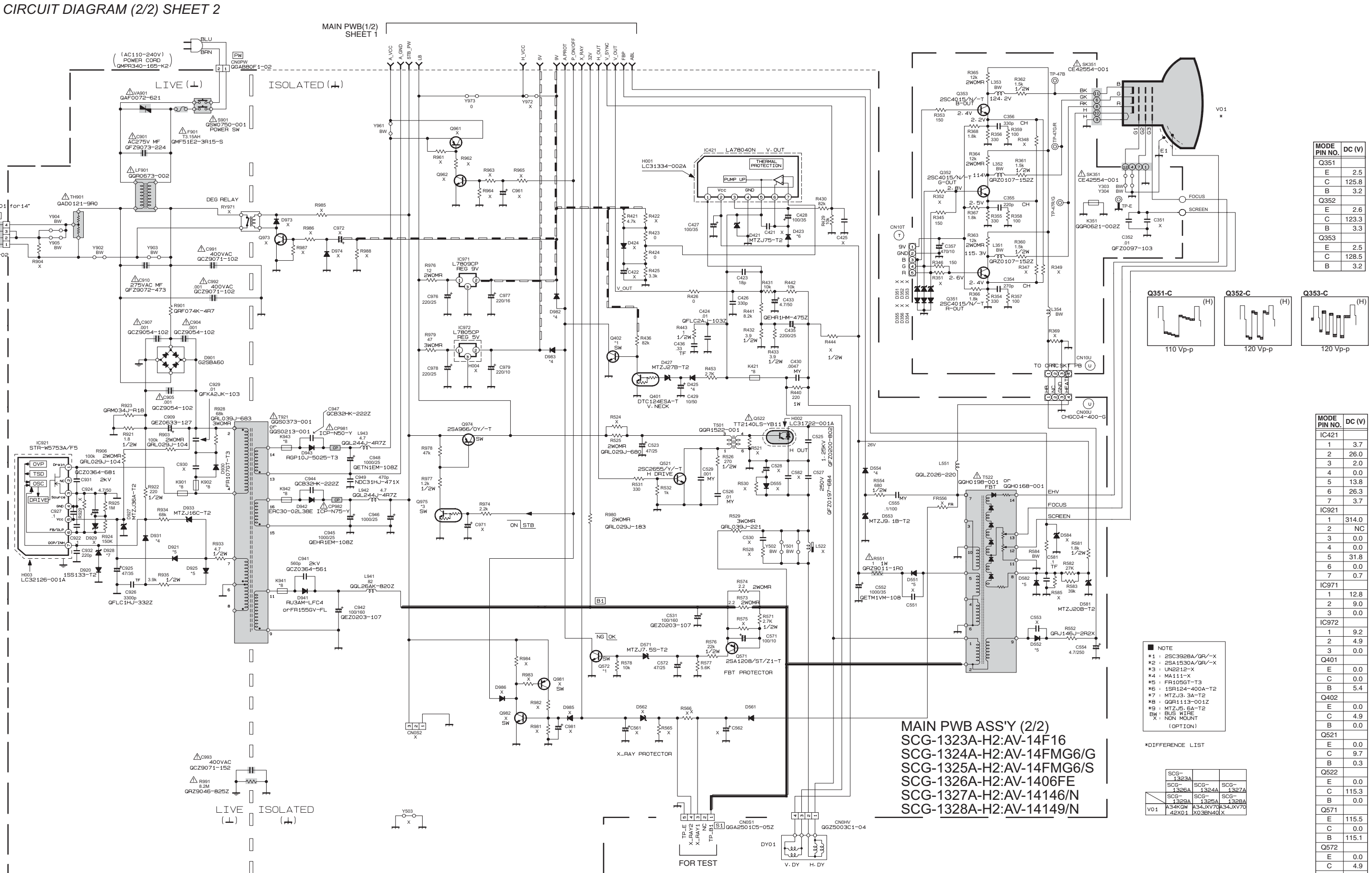
*DIFFERENCE LIST

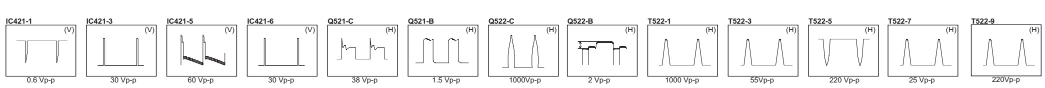
	SCG-1323A	SCG-1327A	SCG-1324A	SCG-1325A	SCG-1328A
	SAA2500	SAA2500	SAA2500	SAA2500	SAA2500
	-X008	-X008	-X008	-X008	-X008
SF102	X	X	X	SAW0JT0J0001	SAW0JT0J0001
CF101	X	X	X	+0012	-0012
Q103	X	X	X	2SD2212	2SD2212
Q161	X	X	X	2SD601A	2SD601A
Q302	X	X	X	2SD2212	2SD2212
Y102	X	X	X	8M	8M
R112	10	10	10	22	22
R114	X	X	X	4.7K	4.7K
R115	X	X	X	2.2K	2.2K
R117	X	X	X	0	0
R118	X	X	X	2.2K	2.2K
R161	X	X	X	1K	1K
R162	X	X	X	1.2K	1.2K
R163	X	X	X	2.2K	2.2K
R164	X	X	X	220	220
R165	X	X	X	22	22
R166	X	X	X	820	820
C109	X	X	X	4.7K	4.7K
C114	X	X	X	0.01	0.01
C151	X	X	X	0.01	0.01
C164	X	X	X	0.01	0.01
C165	X	X	X	0.01	0.01
C166	X	X	X	0.1	0.1
IC701	SAA2246-0001	SAA2246-0001	SAA2246-0001	SAA2246-0001	SAA2246-0001
TU001	SAA2246-0001	SAA2246-0001	SAA2246-0001	SAA2246-0001	SAA2246-0001
J006	X	X	SHK0281-0001	X	X

NOTE

R1 : 2SD601A/GR/-X
R2 : 2SB709A/GR/-X
R3 : UN2212/-X
R4 : RN1111/-X
R5 : MTZJ5.1B-T2
R6 : MTZJ5.6C-T2
R7 : MTZJ12C-T2
R8 : UN2112/-X
R9 : GRM0621-0022
R10 : 2SC5063/L/-A/-T

MAIN PWB CIRCUIT DIAGRAM (2/2) SHEET 2


MAIN PWB(1/2)
SHEET 1
A_VCC
A_GND
STB_PW
LB
H_VCC
5V
9V
A.PROT
P_ON/OFF
X_RAY
32V
H_OUT
V_SYNC
V_OUT
FBP
ABL
(AC110-240V)
POWER CORD
QMPR340-165-K2
LIVE (⊥)
ISOLATED (⊥)
QAF0072-621
S901
QSW0750-001
POWER SW
C901
AC275V MF
QFZ9073-224
F901
T3.15AH
QMF51E2-3R15-S
LF901
QQR0673-002
L01
QQW0171-001 for14"
DEG-COIL
TH901
QAD0121-9R0
DEG RELAY
RY971
CNDEG
QGZ6003C1-02
IC971
L7809CP
REG 9V
IC972
L7805CP
REG 5V
D901
G2SBA60
IC921
STR-W5753A/F5
OVP
TSD
OSC
DRIVE
H003
LC32126-001A
T921
QQS0373-001
or
QQS0213-001
Q974
2SA966/OY/-T
ON STB
IC421 LA78040N V. OUT
THERMAL PROTECTION
PUMP UP
H001
LC31334-002A
Q401
DTC124ESA-T
V. NECK
Q522
TT2140LS-YB11
H002
LC31722-001A
T501
QQR1522-001
Q521
2SC2655/Y/-T
H DRIVE
T522
QQH0198-001 or QQH0168-001
FBT
EHV
FOCUS
SCREEN
Q571
2SA1208/ST/Z1-T
FBT PROTECTOR
X_RAY PROTECTOR
Q353
2SC4015/N/-T
B-OUT
Q352
2SC4015/N/-T
G-OUT
Q351
2SC4015/N/-T
R-OUT
SK351
CE42554-001
V01
K351
QQR0621-002Z
CN10U
CN00U
CHGC04-400-G
CN0S1
QGA2501C5-05Z
TP_E
X_RAY2
X_RAY1
NC
TP_B1
FOR TEST
CN0HV
QGZ5003C1-04
DY01
V. DY
H. DY
C993
400VAC
QCZ9071-152
R991
8.2M
QRZ9046-825Z
LIVE (⊥)
ISOLATED (⊥)
MAIN PWB ASS'Y (2/2)
SCG-1323A-H2:AV-14F16
SCG-1324A-H2:AV-14FMG6/G
SCG-1325A-H2:AV-14FMG6/S
SCG-1326A-H2:AV-1406FE
SCG-1327A-H2:AV-14146/N
SCG-1328A-H2:AV-14149/N
■ NOTE
*1 : 2SC3928A/QR/-X
*2 : 2SA1530A/QR/-X
*3 : UN2212-X
*4 : MA111-X
*5 : FR105GT-T3
*6 : 1SR124-400A-T2
*7 : MTZJ3.3A-T2
*8 : QQR1113-001Z
*9 : MTZJ5.6A-T2
BW : BUS WIRE
X : NON MOUNT
(OPTION)
*DIFFERENCE LIST
SCG-1323A
SCG-1326A
SCG-1324A
SCG-1327A
SCG-1329A
SCG-1325A
SCG-1328A
V01
A34KQW42X01
A34JXV70X03BN40
A34JXV70X
Q351-C
(H)
110 Vp-p
Q352-C
(H)
120 Vp-p
Q353-C
(H)
120 Vp-p

MODE PIN NO.	DC (V)
Q351	
E	2.5
C	125.8
B	3.2
Q352	
E	2.6
C	123.3
B	3.3
Q353	
E	2.5
C	128.5
B	3.2

MODE PIN NO.	DC (V)
IC421	
1	3.7
2	26.0
3	2.0
4	0.0
5	13.8
6	26.3
7	3.7
IC921	
1	314.0
2	NC
3	0.0
4	0.0
5	31.8
6	0.0
7	0.7
IC971	
1	12.8
2	9.0
3	0.0
IC972	
1	9.2
2	4.9
3	0.0
Q401	
E	0.0
C	0.0
B	5.4
Q402	
E	0.0
C	4.9
B	0.0
Q521	
E	0.0
C	9.7
B	0.3
Q522	
E	0.0
C	115.3
B	0.0
Q571	
E	115.5
C	0.0
B	115.1
Q572	
E	0.0
C	4.9
B	0.0
Q974	
E	15.3
C	15.1
B	0.0
Q975	
E	0.0
C	0.1
B	4.3